

CALIFORNIA ENERGY COMMISSION

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**PHASE 1 RESULTS**

Development, Demonstration and Deployment of Environmentally and Economically Sustainable Biomass-to-Energy Systems for the Forest and Food Waste Sectors
EPIC GFO-15-325
November 1, 2016

On June 27, 2016, the California Energy Commission (Energy Commission) released a 2-phase competitive solicitation to fund applied research and development (AR&D) activities and technology demonstration and development (TD&D) activities to advance bioenergy electricity generation. This solicitation is responsive to the Governor's 10-30-2015 Proclamation of a State of Emergency to protect communities against unprecedented tree die-off. Up to \$23 million in Electric Program Investment Charge (EPIC) funding is available to fund applications in:

- Group 1: AR&D: Efficient, Sustainable and Lower-Cost Bioenergy: Innovations to Improve Woody Biomass-to-Electricity Systems (\$5,000,000)
- Group 2: TD&D: Demonstrate and Evaluate Environmentally and Economically Sustainable Woody Biomass-to-Electricity Systems (\$10,000,000)
- Group 3: TD&D: Demonstrate and Evaluate Environmentally and Economically Sustainable Food Waste Biomass-to-Electricity Systems (\$8,000,000)

The Energy Commission received fifty-seven Abstract Packages by the due date of September 8, 2016. Each abstract was screened on a pass/fail basis using the criteria in the solicitation. Fifty-five proposals passed the Administrative Screening.

The attached table titled "Phase 1 Results" identifies each applicant selected to participate in Phase 2, involving a submission of a complete formal application, and includes the requested funding amount by each applicant.

Funding of proposed projects resulting from this solicitation is contingent upon the selection during phase 2 and approval of selected projects at a publicly noticed Energy Commission Business Meeting and execution of a grant agreement. If the Energy Commission is unable to timely negotiate and execute a funding agreement with an Applicant, the Energy Commission, at its sole discretion, reserves the right to cancel or otherwise modify the pending award, and award the funds to another applicant.

In addition, the Energy Commission reserves the right to: 1) add to, remove, or shift funding to make additional awards and 2) negotiate with successful applicants to modify the project scope, schedule, and/or level of funding.

This notice is being mailed to all parties who submitted an application to this solicitation and is also posted on the Energy Commission's website at: www.energy.ca.gov/contracts/.

For information, please contact Crystal Presley-Willis at (916) 653-6110 or Crystal.Presley-Willis@energy.ca.gov.

Crystal Presley-Willis
Commission Agreement Officer



California Energy Commission

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Phase 1 Results

Group 1: Efficient, Sustainable and Lower-Cost Bioenergy: Innovations to Improve Woody Biomass-to-Electricity Systems

November 1, 2016

Project Number	Project Applicant	Title	Energy Commission Funds Requested	Match Funds	Abstract Screening Status
PASSED					
1	The Regents of the University of California on behalf of Berkeley campus (Renewable and Appropriate Energy Laboratory)	Quantifying Co-Benefits of the Electricity Generation from Woody Biomass and Expanded Forest Treatment	\$1,500,000	\$0	Passed
7	University of California, Riverside	Development of Efficient Conversion Process from Woody Waste to Electricity by Steam Hydrogasification	\$860,000	\$0	Passed
11	Clean Energy Systems, Inc.	Negative Carbon Biomass	\$1,500,000	\$460,000	Passed
13	All Power Labs, Inc.	The Nexus of Clean Energy, Healthy Forests, and a Stable Climate: Innovative Biomass Gasification for Sustainable Forest Management	\$1,500,000	\$750,000	Passed
14	University of California, Davis	An Online Application for Decision Support in Siting Woody Biomass-to-Electricity Facilities in California	\$1,222,284	\$28,532	Passed
15	Taylor Energy	Biomass-to-Electricity: Pilot-Scale Testing of Baseload Compared to Flexible Power	\$1,499,000	\$0	Passed
24	Lawrence Berkeley National Laboratory	Mitigating Fire Risk and Climate Change by Matching Forest Biomass Resources with Community Infrastructure, Energy Demand, and Power Generation Opportunities	\$1,500,000	\$0	Passed
26	Altex Technologies Corporation	Small Scale Forest Waste Power System	\$1,499,944	\$0	Passed
39	InnoSeptra, LLC	Biomass Gasification and Cleanup for Power Generation with Higher Efficiency & Lower Emissions	\$1,500,000	\$150,000	Passed
44	Biogenic Energy, LLC	Woody Biomass to Electricity via Supercritical Water Oxidation	\$1,500,000	\$0	Passed
53	Lawrence Livermore National Laboratory	Assessment of Technologies to Improve the Economics of Electricity Generation from California Forest Fire Hazard Reduction Treatments	\$400,000	\$0	Passed
Total			\$14,481,228	\$1,388,532	



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Project Number	Project Applicant	Title	Energy Commission Funds Requested	Match Funds	Abstract Screening Status
DID NOT PASS					
5	BioEnergy Development, LLC	Conditioned Power Storage Applied to: Tuolumne County Biomass Power and Biochar Project	\$400,000	\$40,000	Did Not Pass
8	West Biofuels, LLC	Flexible Generation: Biomass Gasification with Demand Response	\$600,000	\$600,000	Did Not Pass
10	West Biofuels, LLC	Ultra-Low Emission Caterpillar Syngas Engine	\$1,500,000	\$1,500,000	Did Not Pass
23	Wildepheor Consulting Services, LLC	Benefit-Cost Analysis Tool for Evaluating the Economic, Environmental, and Social	\$400,000	\$100,000	Did Not Pass
25	ES Engineering Services, LLC	Woody Biomass Pre-Hydrolysis of Lignocellulose Coupled with Anaerobic Digestion / Gasification for More Efficient Electrical Power Generation and NOx Emission Reduction	\$1,500,000	\$80,000	Did Not Pass
28	University of California - Merced	Development of an Innovative Electromagnetically Enhanced Biomass Gasifier	\$507,863	\$0	Did Not Pass
33	University of California, San Diego	Near-Zero Emission Electricity Generation from California Forest Management Feedstocks using Integrated Biomass Gasification and Solid Oxide Fuel Cells	\$1,500,000	\$0	Did Not Pass
35	ZERE Energy and Biofuels, Inc.	Development of Cost Effective Woody Biomass to Power Systems with Carbon Capture	\$1,500,000	\$190,000	Did Not Pass
41	The Watershed Research and Training Center	Biomass Power Resources: Tools, Techniques, and Strategies for Evaluating Environmental and Economic Impacts of Community Scale Biomass Power	\$700,000	\$0	Did Not Pass
42	University of California, San Diego	Forest Biomass Power Production with Reduced Emissions and Increased Reliability	\$1,500,000	\$100,000	Did Not Pass
47	Sierra Energy	Optimization of Procurement, Transport, and Sierra Energy's FastOx Gasification of Biomass for Renewable Electricity Generation	\$1,500,000	\$0	Did Not Pass
50	Steven Merrill Harrington	Hydraulic Brayton Cycle Biomass to Energy System	\$750,000	\$0	Did Not Pass
51	Interra Energy, Inc.	Innovative Sustainable Forest Management Bioenergy Solution	\$1,500,000	\$0	Did Not Pass
55	Chemergy, Inc.	HyBrTec Pilot to Evaluate Hydrogen, Heat, and Electricity Production from Variety of Wood Wastes to Advance Bioenergy Electricity Generation, Improve Economics of Renewable Biomass-to-Energy Technology, and Create a New Organic Waste Treatment Solution.	\$1,422,350	\$2,361,150	Did Not Pass
57	Retech Engineering, Inc.	Thermo-Chemical Method - Biomass to Energy Micro-Pilot Plant	\$1,250,000	\$100,000	Did Not Pass
Total			\$16,530,213	\$5,071,150	
Grand Total Requested and Proposed Match (Group 1)			\$31,011,441	\$5,071,150	



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Phase 1 Results

Group 2: Demonstrate and Evaluate Environmentally and Economically Sustainable Woody Biomass-to-Electricity Systems

November 1, 2016

Project Number	Project Applicant	Title	Energy Commission Funds Requested	Match Funds	Abstract Screening Status
PASSED					
4	Tuolumne County Economic Development Authority	Tuolumne County Biomass Power and Biochar Project	\$5,000,000	\$5,000,000	Passed
9	Fall River Resource Conservation District	Burney Hat-Creek Bioenergy	\$5,000,000	\$5,000,000	Passed
17	Mariposa County Resource Conservation District (MCRCD)	Mariposa Biomass Project	\$5,000,000	\$12,000,000	Passed
19	All Power Labs, Inc.	Rapid Response to California's Tree Mortality Crisis: Biomass Gasification Feed-In-Tariff Projects at Auberry Mill, Chinese Station, and Camino	\$3,000,000	\$2,100,000	Passed*
20	All Power Labs, Inc.	Rapid Response to California's Tree Mortality Crisis: Biomass Gasification Feed-In-Tariff Projects at Foresthill and Rocklin	\$3,600,000	\$2,550,000	Passed*
21	All Power Labs, Inc.	Rapid Response to California's Tree Mortality Crisis: Biomass Gasification Feed-In-Tariff Project in Fresno	\$3,000,000	\$2,100,000	Passed*
32	ICF Incorporated, L.L.C.	Camptonville Biomass-to-Energy Project	\$5,000,000	\$10,800,000	Passed
37	Sierra Institute for Community and Environment	Indian Valley Community Energy Facility	\$5,000,000	\$1,000,000	Passed
38	Sierra Energy	Sierra Energy's FastOx Gasification of Biomass to Renewable Electricity in the Central Sierras	\$5,000,000	\$3,500,000	Passed
Total			\$39,600,000	\$44,050,000	

**All Power Labs, Inc. may not submit more than one project to Phase 2, otherwise only the first project submitted will be considered.*



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Phase 1 Results

Group 2: Demonstrate and Evaluate Environmentally and Economically Sustainable Woody Biomass-to-Electricity Systems

November 1, 2016

Project Number	Project Applicant	Title	Energy Commission Funds Requested	Match Funds	Abstract Screening Status
DID NOT PASS					
30	The Southern California Gas Company (SoCalGas)	Hydrothermal Gasification: Integrated Biopower from Forest Wood Waste	\$4,000,000	\$1,500,000	Did Not Pass
36	Peña's Disposal, Inc.	Pena Organic Energy Park	\$5,000,000	\$5,500,000	Did Not Pass
22/43	Clean Technologies, LLC	A Proposal to Construct a 3 Megawatt Gasifier Electrical Generation Facility Using Renewable Feedstock to Supply Baseload Power to the Utility Grid Without the Need for Backup Generation	\$2,500,000	\$500,000	Did Not Pass
46	Calaveras Healthy Impact Product Solutions, Inc (CHIPS) and Phoenix Energy and UC Merced	Wilseyville Bioenergy Forest Product Yard	\$4,300,000	\$950,000	Did Not Pass
48	Ortitalita Power Company LLC	Making Biomass Better! Feedstock Efficiency and Economic Optimization for Existing Biomass Gasification Power Plant, Merced, CA, using Forest Material from High Hazard Zones as Defined by CAL FIRE.	\$5,000,000	\$1,000,000	Did Not Pass
54	Clean Energy Systems, Inc.	Pressurized Oxy Boiler Development for Carbon Negative Biomass Power	\$4,500,000	\$2,500,000	Did Not Pass
Total			\$25,300,000	\$11,950,000	
Grand Total Requested and Proposed Match (Group 2)			\$64,900,000	\$56,000,000	



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Phase 1 Results

Group 3: Demonstrate and Evaluate Environmentally and Economically Sustainable Food Waste Biomass-to-Electricity Systems

November 1, 2016

Project Number	Project Applicant	Title	Energy Commission Funds Requested	Match Funds	Abstract Screening Status
PASSED					
3	ES Engineering Services, LLC	Thermal Hydrolysis for Increased Biogas Generation from Food Waste and Hydrogen Generation from Biogas and Injection in Existing Biogas Engines for NOx Reduction	\$4,000,000	\$800,000	Passed
12	Rialto Bioenergy LLC	Rialto Bioenergy Facility Integrated TD&D Project	\$4,000,000	\$4,000,000	Passed
16	Biogas Energy Inc.	San Bernardino County Food Waste Containment Removal to Feed Biogas Plant	\$4,000,000	\$800,000	Passed
18	HZIU Kompogas SLO Inc.	Kompogas SLO	\$4,000,000	\$4,000,000	Passed
27	South Bay Cities Council of Governments	Sustainable Food Waste Biomass-to-Electricity for Transportation Sector Demonstration Project within South Bay Cities of Los Angeles County	\$2,345,975	\$814,419	Passed
31	Agromin Corporation	Agromin Bioenergy Program	\$4,000,000	\$22,700,000	Passed
34	University of California, Davis	Demonstrating the Potential for On-Site Electricity Generation from Food Waste Using Containerized Anaerobic Digestion Units	\$2,650,000	\$570,000	Passed
40	Lystek International Limited	Skid Mounted Mobile Pilot/Education Unit for Source Separated Organics Processing with Cogeneration Capabilities	\$2,400,000	\$600,000	Passed
Total			\$27,395,975	\$34,284,419	



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Group 3: Demonstrate and Evaluate Environmentally and Economically Sustainable Food Waste Biomass-to-Electricity Systems

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Project Number	Project Applicant	Title	Energy Commission Funds Requested	Match Funds	Abstract Screening Status
DID NOT PASS					
6	University of California, Riverside	Onsite Electricity Production from Food-Waste by Hydro-Thermolytic Decomposition and Combined Heat and Power Generation	\$ 1,616,000	\$323,200	Did Not Pass
29	City of Los Angeles	Central Los Angeles Recycling and Transfer Station (CLARTS) Organic Processing Facility (OPF)	\$ 4,000,000	\$33,000,000	Did Not Pass
49	University of Southern California	Food Waste-to-Energy: Demonstration of Pilot-Scale Two-Phase Anaerobic Membrane Bioreactor	\$ 1,092,891	\$315,000	Did Not Pass
52	Opportunity Katalyst	Renewable Energy from Waste Feedstock	\$ 1,500,000	\$350,000	Did Not Pass
56	Entrade Energy Corp	Micro Combined Heat and Power System for Advancing Sustainable Food Waste Biomass-to-Electricity	\$ 3,800,000	\$800,000	Did Not Pass
Total			\$ 12,008,891	\$34,788,200	
Grand Total Requested and Proposed Match (Group 3)			\$39,404,866	\$69,072,619	



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Disqualified Projects

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Project Number	Project Applicant	Title	Abstract Screening Status
Disqualified			
2	Astron Solutions Corporation	Molten Salt Technology to Address Tree Mortality by Bark Beetle Infestation	Disqualified
45	ATP-CA, LLC	Demonstrate, at Pilot-Scale, the Co-Location Efficiency of Converting Forest Biomass from California's High Hazard Zones.	Disqualified